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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,983	08/09/2006	Philip Michael Bagley	ASTB-0054	8859

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EXAMINER

VENNE, DANIEL V

ART UNIT	PAPER NUMBER
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3617

MAIL DATE	DELIVERY MODE
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10/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,983	Applicant(s) BAGLEY ET AL.	
	Examiner DANIEL V. VENNE	Art Unit 3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-16 is/are allowed.
- 6) ☒ Claim(s) 1-13, 17 and 18 is/are rejected.
- 7) ☒ Claim(s) 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An amendment was received from applicant on 9/2/2008.
2. Claims 1, 3, 7 and 14-16 are amended.
3. Claims 19-22 are new.
4. The amendments to the specification are accepted.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1-13, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (US 4123858), in view of De Santis (US 5588808).
Batchelder discloses all claimed features, with the exception of the pressure multiplier configured as claimed. Batchelder discloses a buoyancy control (ballast) system for an underwater submersible (vehicle) comprising a buoyancy (ballast) chamber [30] having a seawater inlet and outlet, volume varying means (valve [71] controlling air pressure) for defining a variable volume (of seawater) within the buoyancy chamber to allow a volume of seawater contained in the buoyancy chamber to vary, power supply [33, 34] (which may be electric) and a hydraulic system (system of Fig. 9 used to pressurize liquid seawater) for pumping seawater. Batchelder does not disclose a pressure multiplier for increasing pressure applied by a hydraulic pump. De Santis discloses a pressure multiplier for elevating pressure provided by a pump [P] to a liquid. The pump

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is not specifically disclosed as a hydraulic pump, although hydraulic pumps are known in the art and any pump (including compressed air) used for pressurizing a liquid can be considered a hydraulic pump (i.e., any device used to pressurize a liquid). Therefore, it would have been obvious to provide a pressure multiplier with the submersible device of Batchelder to create the invention as claimed by applicant. The rationale would have been to provide an known, effective and reliable means to elevate water pressure in a predictable fashion to enhance the speed and effectiveness of pumping water for the purpose of buoyancy control, maneuvering (via water jets) and for high pressure underwater operations. The glass, steel or titanium materials (which are known) and the sphere shape (known), as well as the undersea depth pressures and capacity recited for the buoyancy chamber, can all be considered obvious design choices for optimizing reliability and performance characteristics. Using flow of seawater from an inlet to generate electrical power for various purposes, including to recharge a power supply is known in the art and would be considered an obvious enhancement to Batchelder in view of De Santis; utilizing seawater flow from an inlet leading into a ballast tank or buoyancy chamber for descending a submersible vehicle is known in the art and is taught in Batchelder, utilizing flow of seawater to turn a turbine to generate electricity during the submersible vehicle descent would be considered an obvious use of a known means in a known manner to provide the predictable result of providing electrical power. Electrical control systems for distribution of current to a battery are known in the art. Dynamically adjusting flow of water (using valves or other similar

means) to create a pressure differential is also known in the art, as is shown in Batchelder (see Fig. 9).

Allowable Subject Matter

7. Claims 14-16 are allowed.
8. Claims 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments filed 9/2/2008 have been fully considered but they are not persuasive. The prior art cited is considered to disclose all claimed subject matter as indicated above. Applicant first argues that Batchelder does not disclose a volume varying means within the buoyancy chamber; Batchelder discloses a volume varying means (valve [71] controlling air pressure) that controls (varies) the volume of seawater within the buoyancy chamber [30]. Applicant secondly argues that there is In response to applicant's argument that there is no suggestion to combine the references; De Santis discloses use of a pressure multiplier for elevating pressure provided by a pump [P] to a liquid; therefore, it would have been obvious to provide a pressure multiplier with the submersible device of Batchelder with the rationale to provide an known, effective and reliable means to elevate water pressure that would improve upon the speed and effectiveness of pressurizing and discharging seawater from the buoyancy chamber.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel V. Venne whose telephone number is (571) 272-7947. The examiner can normally be reached between 7:30AM - 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on (571) 272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DVV

/Lars A Olson/
Primary Examiner, Art Unit 3617